

WHAT IS CLAIMED:

1 1. A method for performing a handoff in a wireless communication system between
2 a primary base station transceiver and a first one of at least two neighboring base station
3 transceivers, the method comprising:

4 receiving a communications signal from a mobile unit, wherein the communications
5 signal includes a phase offset from a pilot signal from the first neighboring base station
6 transceiver,

7 beginning a handoff process,

8 detecting if an ambiguity exists by determining if the phase offset is in a neighbor
9 search window for both neighboring base station transceivers,

10 if the ambiguity exists, resolving the ambiguity by associating the phase offset with the
11 first neighboring base station transceiver, and

12 completing the handoff process to the first neighboring base station transceiver.

13 2. The method of claim 1 wherein the step of resolving the ambiguity includes
14 instructing the mobile unit to increase an active search window, and the method further
15 comprising:

16 if the active search window was increased, decreasing the active search window after
17 completion of the handoff process.

18 3. The method of claim 1 wherein the step of resolving the ambiguity includes
19 pausing the handoff processing until phase offsets for pilot signals from all ambiguous
20 neighboring base station transceivers have been received, wherein the ambiguous neighboring
21 base station transceivers include the at least two neighboring base station transceivers.

22 4. The method of claim 1 wherein the detecting step is performed by a first base
23 station controller in communication with the primary base station transceiver.

1 5. The method of claim 4 wherein the handoff is between the primary base station
2 transceiver and a neighboring base station transceiver controlled by a second base station
3 controller.

1 6. The method of claim 1 wherein the handoff is a soft handoff.

1 7. The method of claim 6 wherein the handoff processing follows CDMA protocols.

1 8. A method for performing a handoff in a wireless communication system having
2 at least one base station controller, at least one primary base station transceiver in
3 communication with a mobile unit, and a plurality of neighboring base station transceivers,
4 the method comprising:
5

6 (a) receiving at least one communications message from the mobile unit, wherein
7 the communications message includes a phase offset from at least one pilot signal from a first
8 one of the plurality of neighboring base station transceivers to the mobile unit;

9 (b) beginning handoff processing for the mobile unit with a second one of the
10 plurality of neighboring base station transceivers;

11 (c) detecting an ambiguity by determining that the phase offset is within a search
12 window for both the first and second neighboring base station transceivers;

13 (d) resolving the ambiguity for subsequent handoff processing; and

 (e) completing the handoff processing;

1 9. The method of claim 8 wherein the step of resolving the ambiguity includes
2 increasing an active search window.

1 10. The method of claim 9 further comprising:
2 decreasing the active search window upon completing the handoff processing.

1 11. The method of claim 9 further comprising:
2 repeating steps (a) through (c),

maintaining the active search window if another ambiguity is detected, and
decreasing the active search window upon completing the handoff processing if another
ambiguity is not detected.

12. The method of claim 8 wherein the step of resolving the ambiguity includes
pausing the handoff processing until a phase offset for pilot signals from all of the plurality of
neighboring base station transceivers have been received.

13. The method of claim 8 wherein the detecting step is performed by a first base
station controller in communication with the primary base station transceiver.

14. The method of claim 8 wherein the handoff processing is performed by the
primary base station transceiver and a neighboring base station transceiver controlled by a
second base station controller.

15. The method of claim 8 wherein the handoff is a soft handoff.

16. The method of claim 8 wherein the handoff processing follows CDMA protocols.

17. A method for performing a wireless connection of a mobile unit in a wireless
communication system having a plurality of neighboring transceivers, the method comprising:
compiling a neighbor list from the plurality of neighboring transceivers,
receiving at least one identifier provided by at least one signal originating from one of
the neighboring transceivers,
beginning a connection process to the one neighboring transceiver,
determining whether the signal is in search windows for two or more of the
neighboring transceivers,
if the signal is in search windows for two or more of the neighboring transceivers,
pausing the connection process until the number of signals received is greater than or equal to
a number of neighbors in the neighbor list.

1 18. The method of claim 17 wherein the determining step is performed by a first
2 controller in communication with the transceivers.

1 19. The method of claim 17 wherein the connection process is performed by a
2 primary transceiver currently in communication with the mobile unit.

1 20. The method of claim 17 wherein the connection process utilizes a soft handoff.

1 21. The method of claim 20 wherein the soft handoff follows CDMA protocols.

1 22. A base station controller comprising:

2 means for receiving at least one communications message originating from a mobile
3 unit, wherein the communications message includes a spreading code (PN) phase offset from
4 at least one pilot signal from one of a plurality of neighboring base station transceivers,

5 means for initiating a handoff process between a primary base station in
6 communication with the mobile unit and the controller, and at least one of the plurality of
7 neighboring base stations,

8 means for detecting an ambiguity by determining whether PN phase offset is within
9 two or more search windows for at least two of the neighboring base station transceivers,

10 means for resolving the ambiguity, and

11 means for completing the handoff process with at least one of the plurality of
12 neighboring base station transceivers when the ambiguity is resolved.

1 23. The controller of claim 22 wherein the base station controller further comprises
2 means for enlarging an active search window upon detecting the ambiguity.

1 24. The controller of claim 23 further comprising:

2 means for decreasing the active search window after completion of the handoff
3 processing.

1 25. The controller of claim 23 further comprising:
2 means for detecting another ambiguity,
3 means for maintaining the active search window, if another ambiguity is detected, and
4 means for decreasing the active search window if another ambiguity is not detected.

1 26. The controller of claim 22 wherein the means for resolving the ambiguity
2 includes means for pausing the handoff processing until the ambiguity resolves.

1 27. A node in a wireless telecommunications network comprising:
2 a receiver device for receiving at least one communications message including a value
3 from a signal from one of a plurality of neighboring transceivers,
4 handoff circuitry for initiating a handoff between a primary base station in
5 communication with a mobile unit and a base station associated with one of the plurality of
6 neighboring transceivers, and
7 a processor including software for detecting an ambiguity by determining whether the
8 signal is within at least two signal search windows for at least two of the neighboring
9 transceivers, for resolving the ambiguity.